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ABSTRACT

A teacher of reading across the curriculum uses stories, many based on the television show "Star Trek" or its derivatives "Star Trek: The Next Generation" (STNG) and "Deep Space 9," to illustrate educational theories and practices. The teacher began a discussion of the nature of language, meaning and the significance of literacy by discussing an episode of STNG entitled "Darmok" in which an alien race spoke only in metaphor. Humor is present in many episodes of "Star Trek," as well as concepts like the power of fear. Cultural differences are explored in a number of episodes of STNG. The teacher uses "Star Trek" as an introduction to a lesson and as an impetus for story writing. One of the most enduring qualities of the three series is their focus on problem solving, which can serve as demonstrations for students. The series are also used for teaching the technique of role playing. Episodes of STNG and of "Deep Space 9" can be used to teach content areas such as English, mathematics, history, physics, chemistry, and biology: "Clues" involves an examination of space and time; "Drumhead" involves a Joe McCarthy-like investigator; "Cause and Effect" involves a time loop; "Time's Arrow," involving backward time travel and Mark Twain; "Emissary" deals with guilt, responsibility, and explaining the nature of time to an immortal race; and "The Forsaken" which involves a "shape-shifting" character. "Star Trek" helps teachers and students to think about politics, prejudice, feminism, leadership, addictions, loyalty from a different perspective. (RS)

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Sheilah Allen

THE WORLD ACCORDING TO GENE RODENBERRY *

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THE WORLD ACCORDING TO GENE RODENBERRY *

"Hollywood, America's greatest modern contribution to world culture, is a business, a religion, an art form, and a state of mind." (Paglia, 1992, p. 14)

So what does Hollywood have to do with teaching? Perhaps, surprisingly, a lot. In these days of mid 1993 the lines of distinction between reality and fantasy are increasingly becoming blurred. Hollywood helped to elect a president; more and more, the Hollywood view of the world is impacting on us through the all-pervasive media. Thus any story relates to the external context of the Hollywood vision of the present--let alone the future.

Recently I've become aware of the extent to which I use stories to illustrate educational theories and practices. I notice in my classes (I teach about reading across the curriculum) that when I begin to tell or read a story, the students are attentive and focussed in a different way. They seem to relate to the story-telling mode (the parable model). And the stories I tell are of different kinds, some

* For the non-Trekkies in our midst, this will not make sense so you may as well stop reading here. Even for Trekkies, you may need to buy one of the books about "Star Trek" or "Next Generation" which are listed in the References. By the way, MacLeans magazine has discovered that if you wanted to watch "ST" or one of the offshoots, you could do so 23 hours a week if you live in Vancouver or Toronto! Perhaps non-Trekkies need to think about what students are watching as "Next Generation" and "Deep Space 9" are the most popular shows on television.

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related to the past and some to the present. Favourite examples from the present relate, I must admit, to "Star Trek" or one of its derivatives: "Next Generation" or "Deep Space 9". In a truly incredible way, "Star Trek" has become so much a part of the popular culture that many of us can talk with assurance about characters, episodes, and issues. I should add that other media--books, movies, magazines--and other television shows contribute to discussions in my classes.

What does this signify for my teaching practices? I assume that it's important for me to relate my teaching to students' interests and experiences. Through our shared experiences with "Star Trek" we find a common ground. I also assume that in order to teach certain behaviours I need to model them. Making connections is vitally important for making learning come alive. What does that mean to me, why should I bother to learn, why is it relevant to my life? These are legitimate questions which deserve an answer. In some sense, "Star Trek" provides a futuristic touchstone against which all that we know now can be measured. And because of the positive view of the future left to us by Gene Rodenberry we can go forward with a sense of optimism and hope.

The impact of this world view on teaching practices can't be overemphasized. In what follows, I want to explore specific examples from the media, pointing out how behaviour and attitudes of other cultures and times connect to both my classrooms and secondary school classrooms. My purpose is to explore how these

environments can interact. At a time of confusion and chaos in the educational enterprise we need to be devising strategies for involving and interesting learners. Enter Hollywood.

On a recent rerun of "STNG" ("Star Trek the Next Generation") Paul Winfield appeared as a reptilian alien who wanted to communicate with the Federation (episode entitled "Darmok"). The problem was that his race spoke only in metaphors: eg. Darmok and Jalad by the river in the moonlight. Captain Picard had to figure out what such a 'sentence' meant, thereby enabling the two races to communicate. I found the problem-solving process particulary fascinating. The poignant conclusion was indeed Picard's understanding of the metaphoric language accompanied by the death of the alien captain. He had given his life to establish this link. When I talked about this in my class, we began to explore the nature of language and meaning. The significance of literacy in its broadest sense was raised.

Whatever the merits are of learning indirectly as opposed to directly, the metaphors of "Star Trek" work for me. We learn about the meaning of being human from Spock, the Vulcan; Data, the android; Q of the Continuum; and the many other aliens with whom the Enterprise comes in contact. From the original series to the present, those stories struck a chord with many of us, setting up connections to present learning. Only last week a student, a history major wanting to make past events meaningful to students, asked me about an assignment in relation to "City on the Edge of Forever," the classic oldie with Joan Collins as Edith Keeler. We discussed

how he could use this story as an introduction to a lesson on World War II.

If I seem here to be vacillating between the story and the metaphors, this is in part purposeful in that I'm trying to demonstrate the way I use the stories to make a point. If the connections are not clear, I will try to make them more overt. This is new territory for me as it was for my classes. We made adjustments to each other in a fairly unique way in that I tried things out on them that were risky for me. For example, prior to introducing a class on helping students to learn from text, I asked how many had seen the recent "STNG" in which Commander Riker--and a handful of others--were constantly tired after rest period. It turned out that they had been abducted by unknown aliens for scientific research. This led to our considering the conference at M.I.T., held earlier this year, in which a group of multiple abductees shared their experiences. We got into such issues as ways of knowing, point of view, shared experiences (or the lack). By arousing students' interest in such topics, I was able to make the connection to textbooks which make assumptions about student learners. We built together a repertoire for making text more accessible to secondary school students.

To return to the metaphor, "Star Trek" enabled us to reflect on our present experiences in a detached way--we could think about politics, prejudice, feminism, leadership, addictions, loyalty and more from a different perspective. The themes in the episodes

provided leads for me to relate learning about those topics to learning about the topics in my classes. When we were considering metacomprehension and metacognition the example I used was from "STNG"--"Yesterday's Enterprise"--in which Tasha Yar came back (she had been killed in a prior season but was back in an alternative universe in which only Guinan--Whoopi Goldberg--knew that something was amiss). The meta concepts became understandable when related to Guinan's awareness of a different reality. We talked about the nature of knowing about reality, both external and internal--hence the tie to metacognition.

Even as I am writing this, a student drops off for me the Technical Manual for the Enterprise D ("STNG"'s starship). Students have taken to doing such things lately, including sharing some prized possessions and collectors' items. What a wealth of data (no pun intended) and memorabilia are available about this universe created originally by one person! If I'm looking for a topic to demonstrate brainstorming or webbing/mapping I'm pretty safe with anything to do with "Star Trek". When discussing setting students up for relationships which spring to mind are those of Captain Picard or Counsellor Troi and the crew. The issue of giving students more responsibility for learning could include considering Wesley Crusher, the young ensign whose education was guided by Commander Riker. There are no end of examples and points of comparison to connect the "Star Trek" experience with my students' lives and, ultimately, their students' lives.

Worf recently remarked on the value of stories, "These are our stories. They tell us who we are." What I propose to do in what follows is to identify the stories from the original "Star Trek" as well as "Next Generation" which teachers can use for a variety of purposes. I will give reasons for using the examples, explain strategies for using them, and share personal highlights from my experience. Then I will select four episodes from "Next Generation" to show how they can be used in subjects like English, social studies, science, and mathematics. Finally I will choose examples from "Deep Space 9" to illustrate the value of recent episodes.

REASONS FOR USING "STAR TREK"

Why use "Star Trek" in the classroom? Because connections can be made between people's experiences through the 'metaphor' of "Star Trek." In an English class when qualities of characters are under consideration a good introduction could be the examination of Spock's loyalty in "The Menagerie." Despite his friendship with Kirk and his commitment to Starfleet, his prior association with Christopher Pike compelled him to break regulations in order to give Pike the life he deserved. This is a great episode for discussing issues like justice, freedom, sexuality, and appearance versus reality. Issues such as violence and power arise in episodes in both series concerning the Romulans (and in the original the Klingons--happily that conflict has been resolved by the time of "Next Generation").

Another reason for using the series is their potential for exploring the issue of communication as mentioned in the Winfield episode "Darmok." In English, foreign languages, and social studies this story has relevance. Humour was often present in the original--see "A Piece of the Action"--gangland mayhem--and "The Trouble with Tribbles"--another classic--as well as the Harry Mudd episodes. From "Next Generation" see "The Naked Now" with a drunken crew and "The Outrageous Okono" with Data experimenting about humour. For considering reason versus emotion we need only to look at Spock and Data. Spock attempted to be Vulcan but his human side continually surfaced while Data aspires to be human (his recently developed ability to dream was revealed in a wonderful episode with clear implications for art classes as well as learning for living and English classes. Self-expression is an important concept here.).

In dealing with such issues as the holocaust (past and present), an important episode from the original series is "Enemy Within" in which there are two Kirks due to a computer malfunction. The point is made that good and evil reside in all of us. A similar point is made in "Mirror, Mirror" in which alternative universes exist, the normal one and an evil one. Another facet to this episode is the power of the individual to change history; that is, nothing is written. A further example is "Lazarus" in which two entities exist in parallel universes, one good and one evil. The series are morality plays, a concept not often revealed on television.

Historical continuity as an issue in social studies is developed in the early "Conscience of the King" including vintage Shakespeare as well as in the more recent episodes in which Spock, Sarek, McCoy and Scott crossed over to "Next Generation." (The *ultimate* cross over is Majel Barrett, Gene's widow, who appeared as Nurse Chapell in the original and as Lwaxana Troi in "STNG" and "DS9"!) The truly incredible scientific and technological advances evident in both series can lead into discussions and learning experiences in mathematics and the sciences. I am impressed with the care taken to authenticate these series through connections with such authorities as NASA and the Rand Corporation. What you see is all possible. A brilliant example from "Next Generation" is the holodeck. A student said to me yesterday, "They created virtual reality in the series and, within the holodeck, another virtual reality." Imagination unbounded!

A concept like the power of fear is illustrated in several episodes. In "The Children Shall Lead Them" the Gorgan exists due to the fears of adults raised by the children; in "The Day of the Dove" an entity feeds on the fear of the Klingons and humans; in "Wolf in the Fold" a Jack-the-Ripper-like alien thrives on terror. We are all afraid of something--in many cases rightly so--but we need to recognize as the characters learn to do that these fears are counterproductive. Gene Rodenberry, through the metaphor of the series, spoke to our innermost feelings and gave us a positive vision as an alternative to much that we see around us. I use "Star Trek"--all three series--as a coping mechanism and try to convey this strategy to my students.

In our own computer age we can be forewarned about the potential for possible abuse from the many examples from the original series involving cultures run by computers: "The Apple"--a peaceful people are stagnating, "For the World is Hollow and I Have Touched the Sky"--a group has lost touch with their reality, "A Taste of Armageddon"--peaceful behavior is replaced at night by violence, "Return of the Archons"--the people behave like zombies. On the up side, clearly there are aliens greater than we know: the Metrons in "Arena," Gary Seven in "Assignment Earth," the Thasians of "Charlie X," the parents in "Squire of Gothos", the pure-energy beings in "Errand of Mercy" and the Traveler in "Where No One Has Gone Before" and "Remember Me."

Since I began writing this paper I've been researching by rereading my book on "Next Generation" (this is research?). I've come up with other theme issues which are important to include such as the examination of cultural differences in episodes like "Code of Honor" in which Tasha is abducted by Lutan, "The Last Outpost" in which the loathsome Ferengi traders are introduced, "Justice" in which Wesley broke a law on an alien planet, "Angel One" in which women rule and men serve, and "Up the Long Ladder" with two diverse cultures--the 'Irish' versus the clones.

Other relevant themes involve diplomacy and self-sacrifice. Using diplomacy to solve problems is dealt with in "Too Short a Season"--an Admiral ingests a drug which renders him younger and younger,

"Loud as a Whisper"--a deaf mediator learns to cope without his assistants, and "The Price"--Picard mediates in the sale of a 'wormhole' (a crucial concept for "DS9"). Self-sacrifice is evident in "Haven"--Troi's betrothed dedicates his life to curing a disease, and Wesley gives up a place at the Academy in "Coming of Age." Obviously there are many more examples but I'm trying to maintain some discipline here and not go over the top as they say Down Under.

STRATEGIES FOR USING "STAR TREK"

Typically I use "Star Trek" as an introduction to a lesson to make connections to a topic or theme. For instance, if our topic relates to getting to know our students I might begin with "I, Borg," about Hugh, the young Borg, in the positive equivalent to the horrific "The Best of Both Worlds 1 and 2" in which Picard became part of the Borg. This one allows us to consider expectations versus reality. If we'll be discussing the importance of good communication skills, episodes with Guinan are always a plus as are many of those with Troi. Another way in which I use "Star Trek" is as an impetus for story writing. Episodes can serve as models for plot and character development--see the introduction of Ensign Ro in "Ensign Ro" and the Bajorans (picked up by Kira in "Deep Space 9") or the return of Tasha in the form of her daughter who is part Romulan in "Unification Part 2." The proliferation of novels based on the two series is an indication that many writers and readers have bought into these alternate realities, as many students have.

One of the most enduring qualities of the series is their focus on problem-solving and they can serve as demonstrations for students on how to go about this. Whether it is Kirk or Picard trying to figure out a mystery, they both ask questions of their crews and respect their input. The episodes in which Picard plays Dixon Hill ("Clues," "The Big Goodbye" and "Manhunt") or Data plays Sherlock Holmes ("Elementary, Dear Data") are brilliant examples of problem-solving at its best. If cooperative learning is my focus I use the example of the process, mentioned above, which occurs in the forward lounge of Picard soliciting advice and opinions. He consistently defers to Troi for an analysis of aliens' mental state.

If role-playing is the technique I want to teach, the series are excellent for initiating this skill. Anyone who watches knows that Data doesn't use contractions, that Geordi is fun-loving and Worf isn't, that Troi and Beverly are supportive. It would be relatively easy for students to play these characters because they know them well. I strongly promote the sharing of assignments in my classes and this relates well to the sharing of authority between Picard and Riker. There are clear divisions or lines of demarcation on the bridge. Yet they are interested in one another's opinions and feedback, as I want my students to be. One other strategy I use is the keeping of logs and journals. Here the Captain's log or personal logs can serve as examples of the kinds of entries students should make. The Captain's log corresponds to the learning log I have students keep while the personal logs equate to students' personal journals.

Historical continuity as an issue in social studies is developed in the early "Conscience of the King" as well as in the more recent episodes in which Spock, Sarek, McCoy and Scott crossed over to "Next Generation." The truly incredible scientific and technological advances evident in both series can lead in to discussions and learning experiences in mathematics and the sciences. I was impressed with the care taken to authenticate these series through connections with such authorities as NASA and the Rand Corporation. What you see is all possible. A brilliant example from "Next Generation" is the holodeck. A student said to me yesterday, "They created virtual reality in the series and, within the holodeck, another virtual reality." Imagination unbounded!

HIGHLIGHTS OF USING "STAR TREK"

It's difficult for me to isolate the highlights as I used the series in virtually every class. What they enabled me to do was share on a personal level my and my students' common experiences. Someone asked me, "What about your students who didn't watch?" My response was that virtually all did, partly due to my influence. One student who had never seen "Next Generation" became an avid fan who told me that he and his wife are now Trekkies--she sent me her thanks. Despite differences in age and background, we were given a common frame of reference in which to make connections. If I said, "Beam me up Scotty." or "Live long and prosper" there was an

immediate 'set' established for what I said next. A more obscure phrase is one I've used a lot lately--"Ruck protect."--because of some events in my own life due to the institution I work in. Finally, the lines of communication between my students and me have never been as strong. Only this morning a student relayed to me that because he knew I was writing this article, he had decided to do a class presentation using a "Star Trek" format.

FOUR EPISODES OF "NEXT GENERATION" FOR SPECIFIC CONTENT AREAS

The first show I'm recommending as a touchstone for different content areas is "Clues," an interesting examination of both space and time. The crew of the Entersprise passes out--except for Data. Upon their recovery, he tells them that only a few seconds have passed when in fact a day has passed. The mystery of why Data lied is explored as more evidence comes forward from various crew members. This episode can be used in a biology class (Beverly's botany experiment and Worf's broken wrist are crucial clues which can be connected to science), a math. class (Geordi's discovery of the changing of the chronometer is a major clue which could be related to numeracy's importance), a history class (the isolationist policy of the Paxans has parallels in both the U. S. and Japan) or an English class (a character study could focus on why Data would lie or the 'story-within-a-story' could be considered). The point is to make a connection between students' experiences with "Star Trek" and the learning which we want them to do.

"The Drumhead" is an unpleasant show in which the stunning Jean Simmons of movie fame, herself a Trekker, plays an investigator a la Joe McCarthy. She and her team are equivalent to the Inquisition, so clearly a history class could use this for a parallel to either historical event. Also the concept of The Prime Directive has significance for an examination of Imperialism. In addition, much is revealed about the Federation's legal system, connecting to concepts in a law class: The Constitution and The Bill of Rights. The accident in Engineering which triggers the witch-hunt could be tied in to a science class as the dilithium chamber explosion is held to be the responsibility of Tarses, presumably a Vulcan but in fact a Romulan (connections to chemistry, physics, and biology through dilithium and genetics). Mathematical concepts can be related to Stardates and what these represent in the chronology of a review of previous episodes for which Picard is being accused of violating the Prime Directive. Also the concept of warp-drive has math. potential. Again the point is to tie students' schema to new knowledge. An English class might analyze the conflict in Simmons' character, Satie, or the plot development in the solution of the investigation. Reviewing previous episodes is a technique which students could use to effect in their writing: involve your reader by referring to what the reader already knows.

"Cause and Effect" is a fascinating story: the Enterprise is in a time loop. Each time the regular poker game is played by Beverly, Worf, Data, and Riker it seems increasingly familiar and predictable. When the doctor treats Geordi for dizziness she has a sense of deja vu.

The collision of the Enterprise with another ship causes the loop to begin again. How the crew figures out what is happening and how it can be stopped is a great example of problem-solving. The significance of the number three, which enables the cycle to be broken, would not be lost on a math. class. Nor would the ninety year loop experienced by the crew of the other starship! The physics involved in a tractor beam, in the concept of the shuttle bay, and the tie in between astronomy and the series is worthy of exploration. At a recent astronomy conference held in my building one display described "A New Radiation Hydrodynamics Code for the Calculation of Supernovae Light Curves and Continuum Spectra." My limited understanding of what this is about stems primarily from "Star Trek." An English class could focus on the increasing paranoia which Beverly develops as she hears voices echoing in her cabin. They could also discuss the demands placed on an actor to do a scene over and over with slight variations each time.

Finally, the fifth season closing show "Time's Arrow" is brilliant and useful in many ways. From the perspective of an English class, the inclusion of Mark Twain in the script raises possibilies for debate: how *was* Twain able to write a futuristic novel? What *is* the potential for time travel backwards as well as forwards? And how does the concept of the arrow impact? For history, the connections to the study of the nineteenth century--whether here or in San Francisco--are evident. As necessity is the mother of invention, so Data builds a machine to enable him to communicate with the Enterprise. He also builds a mobile forcefield to counter a suspected

alien threat to history. The local newspaper serves an important function--current events anyone? And archeology is certainly significant as well. The physics needed to understand the workings of the machine Data made as well as such concepts as triolic wave traces, forcefields, and time rifts and vortexes are fascinating to students.

TWO EPISODES OF "DEEP SPACE 9" FOR SPECIFIC CONTENT AREAS

The two shows I have selected to deal with, sans a book about them, are the pilot "Emissary" (which incidentally is a book) and "The Forsaken" which aired only last week. One great value of both the series is their potential for keeping us in touch with students' immediate experiences. "Emissary" was a complex introduction to a new group of characters and a different situation or setting. It unabashedly made use of much high tech. but also dealt with such issues as guilt and responsibility, foreknowledge and fate, life and death. When Commander Sisko attempts to explain the concept of time as we know it to a race which is immortal, all kinds of philosophic and linguistic problems arise. An English class is a great environment in which to talk about such things. Also characters are instrumental in this series as they were in both precursors; both work because we care about the people involved.

In a science class, consideration could be given to the special effects and high technology evident in "DS 9". Some examples are

the holograms and the capacities of Odo, the shape shifter. However, the very existence of a space station like Deep Space 9 relates to all aspects of the sciences. For a history class, the comparisons between human and Bajoran culture (and history) go a long way in promoting a view of multiculturalism here and now. The traditions of that people and their guerilla warfare with the Cardassians are certainly relevant today. The mathematical ramifications of the wormhole and its inhabitants press to the boundaries of arithmetic theory. The station is grounded in mathematics, from the engineering considerations to the ideas of what is possible.

"The Forsaken" is much 'scaled down' in terms of special effects and focus on characters. The most important story line is concerned with Odo, the shape shifter, and Lwaxana Troi in her most mellow role (although she was great with David Odgen Stiers in "STNG"'s "Half a Life"). History-wise, the cross over between these two series is a point of discussion. How does this relate to media and historical personalities such as President Clinton? Hollywood strikes again. For science, the special effects continue to be wonderful although limited in comparison to the pilot (not so many incredibly effective holograms). Odo's 'meltdown' is terrific--how *do* they do that? Relating this to science experiments wouldn't be such a stretch. My focus in an English class would be on the importance of communication skills, an on-going issue in all the series. The initial conflict between Odo and Lwaxana is resolved by the sharing of their weaknesses, surely an important example for

literature and life. Another point to apply for the consideration of short stories is the existence of subplots.

CONCLUSION?

In a way, there cannot be a conclusion to this paper as the whole intent is for teachers to maintain an on-going interaction with the media--in this instance, "Star Trek"--in order to make connections on a daily basis between students' experiences with these most popular series and the subjects under study in schools. The media are some of the most important influences on our students' lives. If we don't take advantage of this, we are missing incredible resources. The knowledge we want to teach, the skills we want to develop, and the attitudes we want to instill can all be accommodated by utilizing the media. Yes, it takes some creative thinking. Thanks, Gene Rodenberry, for taking a big step for all of us. The worlds you created speak to both our present and our future, enabling us to connect to our students in a unique way. We, as teachers, need to keep on trekking!

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